



THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

of the

TOWN OF BOTHWELL

COUNTY OF KENT

1967

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Report on a water pollution
survey of the town of Bothwell,
county of Kent.

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REPORT

ON A

WATER POLLUTION SURVEY

OF THE

TOWN OF BOTHWELL

COUNTY OF KENT

1967

DISTRICT ENGINEERS BRANCH

DIVISION OF SANITARY ENGINEERING.

ONTARIO WATER RESOURCES COMMISSION

REPORT

INTRODUCTION

A water pollution survey of surface water drains was conducted within the Town of Bothwell during the summer of 1967. The purpose of the survey was to assist the municipality in locating any existing pollution conditions.

Information pertinent to the survey was provided by Mr. G. Saylor, Reeve.

GENERAL INFORMATION

The Town of Bothwell, with a 1966 assessed population of 826 (1967 Municipal Director), is located on Highway #79 near the north-east boundary of the County of Kent. The town is situated roughly 4 miles north of the Thames River and approximately 6 miles east of the Sydenham River.

In general, drainage from the southern part of the town flows in a southerly direction to the Thames River and drainage from the northern part of Bothwell is effected by means of an open municipal drain located between Concession 8 and 9, Township of Zone. This drain discharges into a branch of the Sydenham River.

WATER SUPPLY

The Town of Bothwell does not have a municipal water works. The residents obtain water from individual wells and from the Walters Private water supply. This system consists of a drilled

well and no treatment is imparted to the water prior to distribution to nine consumers.

WATER POLLUTION

1. Sewage Treatment Facilities

The Town of Bothwell has no communal waste treatment facilities. Treatment is provided by individual septic tank systems, some of which are probably discharging to surface-water drains and storm sewers. These, in turn, outfall at various points to upper reaches of watercourses.

2. Industrial Waste Disposal

There are no industries producing large volumes of waste water requiring treatment.

3. Sanitary Waste Disposal

Refuse from Bothwell is disposed of at a Township dump. The site is located in the Township of Zone, Lot 13, Concession River Range.

WATER QUALITY ANALYSES

Samples were collected where possible, from catch basins and from the flow at the outfalls of drains in order to assess the degree of pollution being discharged from the Town of Bothwell into adjacent watercourses.

The laboratory results of the bacteriological examinations and of the chemical analyses of the samples collected are listed in Table I. The locations of the sampling points are indicated on the

accompanying map.

INTERPRETATION OF LABORATORY ANALYSES

For convenience in the interpretation of laboratory analyses, the Ontario Water Resources Commission water quality objectives for surface-water drains, watercourses, and bodies of water are listed as follows:

Surface-Water Drains

5-day BOD (Biochemical Oxygen Demand)

- not greater than 15 parts per million(ppm)

Suspended Solids

- not greater than 15 parts per million (ppm)

Coliform Count (Membrane Filter)

- not greater than 2,400 per 100 millilitres

Watercourses

5-day BOD (Biochemical Oxygen Demand)

- not greater than 4 parts per million (ppm)

Coliform Count (Membrane Filter)

- not greater than 2,400 per 100 millilitres

Anionic Detergents

- the presence of anionic detergents in water samples usually indicates pollution from domestic sources.

SIGNIFICANCE OF LABORATORY ANALYSES

The appended laboratory results indicate that most of the samples collected showed pollution levels in excess of the OWRC water-quality objectives. Specific attention is being drawn to the following points:

(i) Main & Oak Streets (4)

- (ii) George Street, 50 ft.W. of Main Street (5)
- (iii) George Street, between Gordon and Main Streets (6)
- (iv) Open ditch at Macewen and Peter Streets (8)

The above samples had 5-day BOD values ranging from 28 to 310 ppm which are greatly in excess of the objective value of 15 ppm. In addition, the coliform counts and suspended solids contents were very high and all samples contained varying degrees of anionic detergents.

Interpretation of these laboratory results brings us to the conclusion that domestic sewage is the most probable major source of the contaminating materials discovered in the sampled waters. The above mentioned condition is often caused when private drains are permitted to discharge to storm and surface-water drains.

SUMMARY AND CONCLUSIONS

A water pollution survey was conducted in the Town of Bothwell during the summer of 1967. Samples were collected from catch basins and from outfalls of surface-water drains within the town and the locations of sampling points were plotted on the accompanying map. The samples were then submitted to the OWRC laboratory for chemical analyses and bacteriological examinations, and the following conclusions were arrived at:

- (i) Most of the surface-water drains investigated contained pollution, often in excess of the limits set by the OWRC water quality standards.

(ii) The high BOD, suspended solids content, coliform counts and the presence of anionic detergents were an indication that domestic sewage and wastes were the major sources of the contamination.

(iii) The presence of these polluting materials was probably due to private sanitary systems discharging to storm and surface water drains.

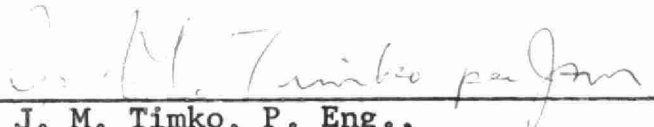
RECOMMENDATIONS

The Town of Bothwell will have to take corrective actions in order to eliminate the high levels of pollution in the surface-water drains. The municipality might try solving this problem by ensuring that all private drains discharging domestic wastes and sewage to surface water drains be located and severed. This action would then require each property owner to provide an adequate means for the treatment of his own wastes.

In the event that the above solution is not adequate or feasible, the town should then consider the initiation of a municipal sewage works project as soon as possible.

bh

Approved by


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District Engineer,
Division of Sanitary Engineering,

Prepared by:
A. Burlachenko,
Civil Technologist.

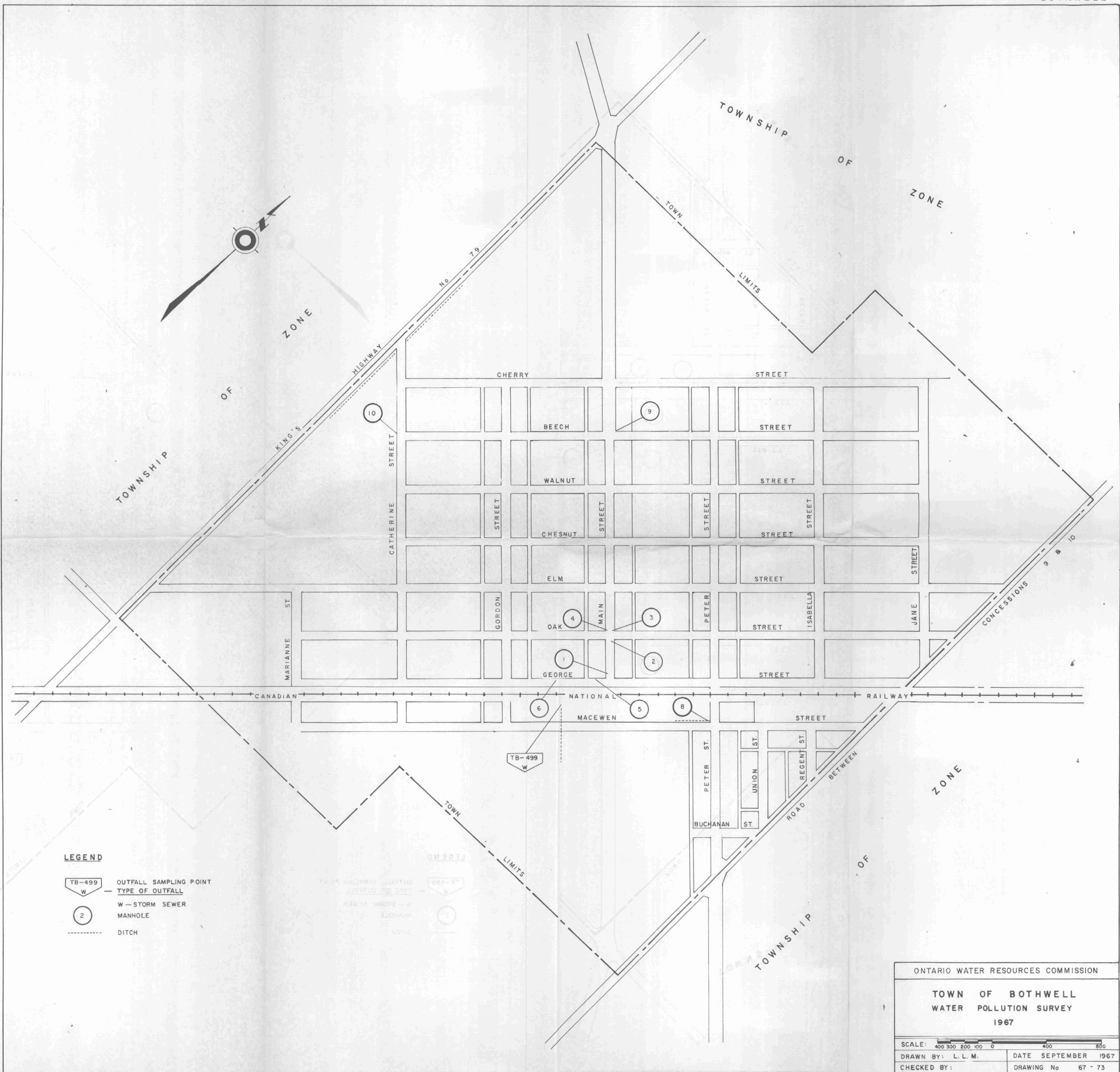
TABLE I

TOWN OF BOTHWELL - WATER POLLUTION SURVEY

Sampling Point No.	Location of Sampling Point	5-Day BOD (ppm)	SOLIDS (ppm)			Anionic Detergents as ABS (ppm)	Coliform Count per 100 ml (M.F.)
			Total	Susp.	Diss.		
1	Manhole-Main St. and George St. (N-W corner)	10	952	148	804	0.2	3,000,000
2	Manhole-Main St. and Oak St. (S-E corner)	16	1782	922	860	0.1	37,000
3	Manhole-Main St. and Oak St. (N-E corner)	16	6982	290	6692	0.1	75,000
4	Manhole-Main St. and Oak St. (N-W corner)	28	916	260	656	0.6	4,000,000
5	Catch Basin (7'X 5') - On George St. about 50' west of Main St. (N-side of George St.)	31	1136	262	874	0.4	1,400,000
6	Manhole-On George St. between Gordon and Main (N-side)	47	1966	1086	880	0.2	500,000
TB-49.9W	Outfall-to open ditch south of C.N.R. tracks	8	830	8	822	0.3	4,500,000
8	Open ditch - N-side of Macewen at Macewen St. & Peter St.	310	1162	454	708	2.0	45,000

TABLE I CON'T.

Sampling Point No.	Location of Sampling Point	5-day BOD (ppm)	SOLIDS (ppm)			Anionic Detergents as ABS (ppm)	Coliform Count per 100 ml (M.F.)
			Total	Susp.	Diss.		
9	Manhole - Beech and Main (N-E corner)	7	762	204	558	1.9	2,800,000
10	Manhole - Catherine St. and Beech St. (just W- of Catherine St.)	3	2118	556	1562	0.1	6,000,000



LEGEND

- TB-499 W — OUTFALL SAMPLING POINT
- W — TYPE OF OUTFALL
- W — STORM SEWER
- 2 — MANHOLE
- DITCH

ONTARIO WATER RESOURCES COMMISSION

TOWN OF BOTHWELL
WATER POLLUTION SURVEY
1967

SCALE: 400 300 200 100 0 400 800
DRAWN BY: L. L. M. DATE SEPTEMBER 1967
CHECKED BY: DRAWING No 67 - 73